



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/581,188

10/04/2007

Chandra Venkatraman

016782-0360

3239

22428 7590 09/18/2009
FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

RUMP, RICHARD M

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

09/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,188	Applicant(s) VENKATRAMAN ET AL.	
	Examiner Richard M. Rump	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC §§ 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-2, 4, 6, 10 & 13-15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent No. 5718976 to Dorfman.

Regarding claims 1-2, 10 & 13-15, Dorfman discloses a structure placed on a substrate comprising a DLC and DLN layer with an optional layer of Ti, Cr TiN, CrN and alloys thereof (column 2, lines 53-58; column 5, lines 27-32). This layer is added to aid in adherence (column 1, lines 29-37) as such a skilled artisan would find at a minimal, it obvious to perform adding the layer therein.

Regarding claim 4, a layer between 3 and 5 nm for the DLN may be deposited (column 11, line 5 & table 1).

Regarding claim 6, the DLC is deposited between 20 and 500 microns (Table 1).

Claims 3 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorfman in view of Baekert.

Regarding claims 3 and 7, Dorfman does not disclose a DLN of the requisite composition nor one acting as a top layer, however in a similar product, Baekert disclose the usage of the requisite composition (*Id.*) on the top layer (column 8 lines 30-51). Therefore it would have been obvious to one having an ordinary level of skill in the art at the time of invention to perform the structure of Dorfman in view of the

Art Unit: 1793

composition and top layer of Baekert. The teaching or suggested motivation in doing so is that the DLN of that composition will have a higher conductivity (Baekert: Page 4, line 8) and that adding it as a top layer for controlling wettability (page 4, lines 1-4).

Claims 5, 7-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorfman.

Regarding claim 5, Dorfman does not expressly state the thickness of the intermediate layer, however a skilled artisan would be motivated to perform the intermediate layer at a thickness such that it would well adhere.

Regarding claim 7, the elements are presented at a combined ratio of the following: Si is between 1% and 40% of the carbon concentration, O is between 0.0375 and 100% that of the carbon. This overlaps that range instantly claimed and as such a *prima facie* case of obviousness exists (See MPEP 2144.05). In event of *arguendo*, a skilled artisan would find it obvious to perform controlling the concentration of the DLN to control mechanical strength (column 5, lines 18-21).

Regarding claims 8-9, metal doped DLN/DLC may be utilized (column 7, lines 39-42). Specifically regarding claim 8, in event of *arguendo*, a skilled artisan would find a dopant concentration an obvious expedient in order to control the optical transmissive states (column 6, lines 42-45).

Regarding claim 12, it would appear obvious if not inherent from the examples that a similar methodology is being utilized to arrive at the same invention (See example 1).

Response to Arguments

Applicant's arguments with respect to claims 1-10 & 12-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Claims 1-10 & 12-15 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard M. Rump whose telephone number is (571) 270-5848. The examiner can normally be reached on Monday through Friday 7:00 AM-4:30 PM (-5 GMT).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571)272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. M. R./
Examiner, Art Unit 1793

/Stuart Hendrickson/
Primary Examiner, Art Unit 1793